

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listing of claims in the present application.

LISTING OF CLAIMS

1. (Currently Amended) A capillary assisted loop thermosiphon apparatus comprising:
at least one evaporator connected by a vapor line to a condenser, the vapor line comprising a tube having a first end connected to the evaporator and a second end connected to the condenser;
a liquid line connecting the condenser and the evaporator, the liquid line comprising a tube having a first end connected to the condenser and a second end connected to the evaporator;
the evaporator has a height in a direction of gravity significantly greater than a width perpendicular to the height, and is positioned in the direction of gravity from the condenser such that the condenser supplies liquid under gravity induced pressure to the evaporator, and the evaporator has a vertical capillary wick in which liquid wicks in the direction of gravity, wherein liquid flow through the wick of the evaporator from the inlet to the outlet is substantially vertical.
2. (Previously Presented) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
the capillary wick conducts heat and extends vertically against a heat absorbing surface on the evaporator;
and a vapor collection cavity extends vertically along the capillary wick, the vapor collection cavity being connected to the vapor line.

3. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
a liquid line irrigator connected to the liquid line supplies liquid under gravity induced pressure to a vertical heat conducting section of the capillary wick;
the capillary wick extends in conducting engagement along at least one heat absorbing surface on the evaporator; and
a vertical vapor collection cavity in the heat conducting section of the capillary wick extends vertically along the capillary wick, and the vapor collection cavity is connected to the vapor line.
4. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
a liquid line irrigator is connected to the liquid line, and the liquid line irrigator extends along a top portion of the capillary wick to dispense liquid to the top portion of the capillary wick.
5. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein, the capillary wick is a layer of porous sintered material on a sheet of conducting material.
6. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
a liquid line irrigator connects to the liquid line, the liquid line irrigator extends along the capillary wick, and a series of fluid dispensing openings in the liquid line irrigator distributes working fluid along the capillary wick.
7. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
the capillary wick is a first layer of porous sintered material on a first sheet of conducting material, and a second later of porous sintered material on a second sheet of conducting material;
and
a liquid line irrigator is connected to the liquid line, the liquid line irrigator has both, a first series of openings dispensing liquid phase working fluid on the first layer, and a second series of openings dispensing liquid phase working fluid on the second layer.

8. (Previously Presented) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,

the capillary wick is a first layer of porous sintered material on a first sheet of conducting material, and a second layer of porous sintered material on a second sheet of conducting material; and

reinforcing rods between the first layer and the second layer define a vapor collection cavity therebetween; and the vapor collection cavity connects with the vapor line.

9. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein, the capillary wick is a layer of porous sintered material on a sheet of conducting material; and

reinforcing rods define a vapor collection cavity along the capillary wick.

10. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein, the capillary wick is a layer of porous sintered material on a sheet of conduction material; and

reinforcing rods extend across a surface of the capillary wick and define a vapor collection cavity along the surface.

11. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein, the vapor line connects to a first manifold having multiple outlets for connecting respective vapor lines of multiple evaporators;

the liquid line connects to a second manifold having multiple outlets for connecting respective liquid line irrigators; and

the respective liquid line irrigators distribute liquid to respective capillary wicks of the multiple evaporators.

12. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
the vapor line connects to a first manifold having multiple outlets for connecting
respective vapor lines of multiple evaporators;
the liquid line connects to a second manifold having multiple outlets for connecting to
respective liquid line irrigators for the multiple evaporators; and
the multiple evaporators are interconnected along their bottoms to share a common liquid
reservoir.
13. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
reinforcing rods extend lengthwise across a surface of the capillary wick and define the
vapor collection cavity, and prevent collapse of the capillary wick into the vapor collection
cavity.
14. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
the capillary wick is a layer of sintered conducting material on a sheet of conducting
material; and
reinforcing rods extend lengthwise across a surface of the capillary wick and define the
vapor collection cavity, and prevent collapse of the capillary wick into the vapor collection
cavity.
15. (Previously Presented) The capillary assisted loop thermosiphon apparatus as in claim 1
wherein,
the capillary wick is a layer of sintered conducting material on a sheet of conducting
material;
a liquid line irrigator is connected to the liquid line;
the liquid line irrigator extends along a top portion of the capillary wick; and
a series of fluid distribution openings in the liquid line irrigator supplies liquid to the
capillary wick.

16. (Original) The capillary assisted loop thermosiphon apparatus as in claim 1 wherein,
the capillary wick is a first layer of porous sintered material on a first sheet of conduction material, and a second layer of porous sintered material on a second sheet of conducting material;
reinforcing rods between the first layer and the second later define a vapor collection cavity therebetween; and
the vapor collection cavity connects with the vapor line; and
the reinforcing rods are secured to at least one porous backing layer.

17. (Currently Amended) A capillary assisted loop thermosiphon apparatus comprising:
at least one evaporator connected by a vapor line to a condenser, the vapor line comprising a tube having a first end connected to the evaporator and a second end connected to the condenser;

a liquid line connecting the condenser and the evaporator, the liquid line comprising a tube having a first end connected to the condenser and a second end connected to the evaporator;

the evaporator is positioned in the direction of gravity from the condenser such that the condenser supplies liquid under gravity induced pressure to the evaporator; and

the evaporator has a height in a direction of gravity significantly greater than a width perpendicular to the height, and has at least a pair of sheets, with at least one of the sheets having a corresponding wick portion attached thereto to provide a vertical capillary wick in which liquid wicks in the direction of gravity, wherein liquid flow through the wick of the evaporator from the inlet to the outlet is substantially vertical.

18. (Original) The capillary assisted loop thermosiphon apparatus as in claim 17 wherein, a vapor collection cavity extends vertically along the capillary wick, and the vapor collection cavity is connected to the vapor line.

19. (Original) The capillary assisted loop thermosiphon apparatus as in claim 17 wherein, a liquid line irrigator connected to the liquid line supplies liquid under gravity induced pressure to a vertical heat conducting section of the capillary wick;

the capillary wick extends in conduction engagement along at least one heat absorbing surface on the evaporator; and

a vapor collection cavity in the heat conducting section of the capillary wick extends vertically along the capillary wick, and the vapor collection cavity is connected to the vapor line.

20. (Original) The capillary assisted loop thermosiphon apparatus as in claim 17 wherein, a liquid line irrigator is connected to the liquid line, and the liquid line irrigator extends along a top portion of the capillary wick to dispense liquid to the top portion of the capillary wick.